Mumbai University

Question Paper

NETWORK SECURITY

B.Sc.IT: Semester – V

April – 2017

Time: 2 ½ Hours　　　　　　　　　　　　　　　　　　　　　　　　　　　　**Total Marks:** 75

N.B.: **(1)** *All Question are Compulsory.*
　　　(2) *Make Suitable Assumptions Wherever Necessary And State The Assumptions Made.*
　　　(3) *Answer To The Same Question Must Be Written Together.*
　　　(4) *Number To The Right Indicates Marks.*
　　　(5) *Draw Neat Labeled Diagrams Wherever Necessary.*
　　　(6) *Use of Non – Programmable Calculator is allowed.*

Q.1　ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Describe the various Security Services. (5)
(B) What are Poly-Alphabetic Ciphers? Explaining one technique with suitable example. (5)
(C) What is Cryptanalysis? Explain different Cryptanalysis Attacks. (5)
(D) What is DDOS Attack? What are the ways in which DDOS attack can be classified? (5)

Q.2　ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Explain the working of AES Round in detail. (5)
(B) Explain the Encryption Operation used in RC5 Algorithm. (5)
(C) Explain the working of IDEA Algorithm. (5)
(D) Write a note on Blowfish. (5)

Q.3　ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What is Message Digest? Explain. (5)
(B) Explain the working of the SHA Algorithm. (5)
(C) What is a Digital Signature? Explain the different categories of verification. (5)
(D) Explain the ElGamal Cryptosystems. (5)

Q.4　ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Explain the Diffie Hellman's Key Agreement Algorithm and its vulnerability. (5)
(B) What is Key Pre-Distribution? Explain. (5)
(C) Write a note on Station-To-Station Protocol. (5)
(D) What is KDC? Explain its different implementations and significance. (5)

Q.5　ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) What are Firewalls? What are its characteristics and limitations? (5)
(B) Write a note on IPSec Architecture. (5)
(C) What is SSL Record Protocol? Explain its operations. (5)
(D) Explain the Handshake Protocol Action. (5)

Q.6　ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A) Explain the Password Based Authentication System. What are the problems associated with passwords? (5)
(B) Write a note on Kerberos. (5)
(C) Explain Biometric Authentication Technique. (5)
(D) What is Certificate Based Authentication and explain its working. (5)

[TURN OVER]

Q.7 <u>ATTEMPT ANY THREE QUESTIONS:</u> **(15 MARKS)**

(A) What are the different goals of Security? Explain the different attacks these Security goals are vulnerable to. **(5)**

(B) Explain the working of DES function in details. **(5)**

(C) What is Asymmetric Encryption? Explain the RSA Algorithm used for Asymmetric Encryption. **(5)**

(D) Explain the concept of Digital Certificate and how it is created? **(5)**

(E) What are the approaches used to Detect Intrusion? Give a brief description of each. **(5)**

(F) Write a note on Authentication Token. **(5)**

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ASP.NET WITH C#

B.Sc.IT: Semester – V
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Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What are Boxing and Unboxing? How is it achieved?   **(5)**
(B)   What is Type Conversion? Explain Implicit and Explicit Type Conversion with suitable example.   **(5)**
(C)   What is a User Defined Exception? Explain with Syntax.   **(5)**
(D)   Differentiate between Abstract Class and Interface.   **(5)**

Q.2   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is the difference between Private Assembly and Shared Assembly?   **(5)**
(B)   Short note on JIT (Just In Time) Compiler.   **(5)**
(C)   What is an Event? What are the differences between Delegate and Event?   **(5)**
(D)   What is Garbage Collection? Explain three types of generations in Garbage Collection.   **(5)**

Q.3   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Differentiate between HTML Server Controls and Web Server Controls.   **(5)**
(B)   <u>Explain the following properties/events of checkbox control.</u>   **(5)**
     (i)   *ID*
     (ii)   *AccessKey*
     (iii)   *Text*
     (iv)   *Checked*
     (v)   *CheckedChanged()*
(C)   What is the difference between inline code and code behind in asp.net?   **(5)**
(D)   Explain the Implicit and Explicit Conversion of data types with examples.   **(5)**

Q.4   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is ViewState? Where is the ViewState stored after the page postback?   **(5)**
(B)   Explain the relationship between Master Page and Content Page.   **(5)**
(C)   Define the steps to set up Validation Control in an ASP.NET Web Page.   **(5)**
(D)   Explain Response.Redirect() and Server.Transfer() methods in ASP.NET.   **(5)**

Q.5   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain the various Authentication Mechanisms in ASP.NET.   **(5)**
(B)   What is ListView Control? List the features provided by ListView Control.   **(5)**
(C)   Differentiate between DataSet() and DataReader().   **(5)**
(D)   Explain the properties and methods of Command Object.   **(5)**

Q.6   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What role does the ScriptManager Play? Explain the UpdatePanel Control.   **(5)**
(B)   Explain the jQuery syntax and Document Ready Event with the example.   **(5)**
(C)   Explain DOM manipulation methods in jQuery.   **(5)**
(D)   Write and explain the basic syntax of a LINQ Query in C#.   **(5)**

[Turn Over]

Q.7   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)	Explain for each loop? How is it different from for loop?	**(5)**
(B)	Explain working with CSS using Visual Studio Developer.	**(5)**
(C)	What are the Event Handlers that we can have in global.ajax file?	**(5)**
(D)	What is Website Navigation? Explain structure of web.sitemap file with suitable example.	**(5)**
(E)	Explain DataAdapter with its properties and methods.	**(5)**
(F)	What is AJAX? What are the advantages and disadvantages of AJAX?	**(5)**

SOFTWARE TESTING

B.Sc.IT: Semester – V
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Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is Software Testing? Give the Objectives of Testing.   **(5)**
(B)   Describe the steps of Fundamental Test Process.   **(5)**
(C)   What are the causes of Software Defects?   **(5)**
(D)   Define the term Confirmation Testing. Give its importance.   **(5)**

Q.2   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Define and compare the concept of Verification and Validation.   **(5)**
(B)   "Nonfunctional testing emphasizes on product characteristics" Discuss.   **(5)**
(C)   Explain Alpha and Beta Testing with reference to Acceptance Testing.   **(5)**
(D)   With the help of diagram explain V Model.   **(5)**

Q.3   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is Kick of Meeting? Explain its Role and Importance.   **(5)**
(B)   Describe the Roles and Responsibilities of Moderator and Manager in Review Process.   **(5)**
(C)   Explain the goals of Technical.   **(5)**
(D)   Explain Static Analysis as a form of Testing.   **(5)**

Q.4   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is Decision Table? Describe decision table Testing Technique.   **(5)**
(B)   State and explain the factors considered for choosing Test Techniques.   **(5)**
(C)   Compare Black Box Testing Vs White Box Testing.   **(5)**
(D)   Write a note on Boundary Value Analysis Technique with suitable example.   **(5)**

Q.5   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is a Test Plan? State and explain any four components of a Test Plan Test.   **(5)**
(B)   What are the skills that are needed for the Test Leader?   **(5)**
(C)   What do you mean by Risked Based Testing?   **(5)**
(D)   Define the terms Priority and Severity with reference to Incident Management.   **(5)**

Q.6   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What are the Potential benefits of using tools to support Testing?   **(5)**
(B)   Explain the terms Stub and Driver with reference to Test Harness.   **(5)**
(C)   Explain Dynamic Analysis Tools used for Performance Monitoring.   **(5)**
(D)   Explain any one tool used for Static Testing.   **(5)**

Q.7 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A)	Explain any 2 Testing Principles.	**(5)**
(B)	What is Portability? Explain Portability Testing.	**(5)**
(C)	Compare Static Vs Dynamic Testing.	**(5)**
(D)	Explain Equivalence Partitioning as a Test Design Technique.	**(5)**
(E)	What are the purposes of Test Monitoring?	**(5)**
(F)	State and explain Risk Factors associated with use of the Testing Tools.	**(5)**

Advanced Java

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Q.1 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) What is JFrame? Explain its constructors and methods. **(5)**
(B) What are adapter classes in java? Why are they used? **(5)**
(C) Explain the java event delegation model. **(5)**
(D) What are the different types of layout in java? Explain. **(5)**

Q.2 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) How is a progress bar created and used in java? **(5)**
(B) Write a java program to demonstrate the use of Tabbed Panes. **(5)**
(C) What are trees in java swings? Explain how nodes are created in a tree. **(5)**
(D) Explain DefaultMutableTreeNode and write a program to demonstrate node creation in trees. **(5)**

Q.3 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) Explain the component "JFileChooser". **(5)**
(B) Explain the ServletConfig Interface in java. **(5)**
(C) Explain the life cycle of a servlet. **(5)**
(D) Write a note on – HttpServlet and HttpSession. Explain the classes along with 4 methods each. **(5)**

Q.4 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) What is Directive in Java Server Pages? Explain Page Directives. **(5)**
(B) Explain the steps for Database Connection and data retrieval in java with an example. **(5)**
(C) Describe the Drivers used in Java Database Connectivity. **(5)**
(D) Explain the Scrollable Result Sets with an example. **(5)**

Q.5 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) What are the different types of Beans in Java? Explain. **(5)**
(B) Explain the process flow of Java Server Faces. **(5)**
(C) Explain the Enterprise Java Bean Architecture. Explain in detail. **(5)**
(D) Give an example of a configuration file used in Java Server Faces. Explain its components. **(5)**

Q.6 **ATTEMPT ANY TWO QUESTIONS: (10 MARKS)**

(A) Explain the Hibernate Architecture in detail. **(5)**
(B) Explain FilterDispatcher and any two roles of action components used in Struts. **(5)**
(C) What is the importance of Hibernate Mapping File? Explain with examples. **(5)**
(D) What are Interceptors? How are Interceptors used in Struts? **(5)**

[TURN OVER]

Q.7 **ATTEMPT ANY THREE QUESTIONS: (15 MARKS)**

(A) Explain the concept on Inner Classes and Anonymous Inner Classes used in Event Handling. **(5)**

(B) Write a Java Swing program to create Menus. **(5)**

(C) Why do we need the ServletContext Interface in Java? **(5)**

(D) Write a note on – Updateable ResultSet used in Java Database Connectivity. **(5)**

(E) Explain the concept of MVC Architecture with respect to Java Server Faces and Struts. **(5)**

(F) Explain any 5 Implicit Objects used in JSP. **(5)**

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Q.1   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Enumerate the features of Linux Operating System.   **(5)**
(B)   Explain the duty of the Linux System Administration in creating and maintain user accounts.   **(5)**
(C)   What are rc scripts? Explain in detail.   **(5)**
(D)   What hardware information is contained in the /proc directory? Explain the importance files in the /proc directory.   **(5)**

Q.2   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Explain any ten important files in /etc/ sysconfig directory.   **(5)**
(B)   What are routers and gateways? How is IP forwarding configured on Linux? Explain.   **(5)**
(C)   Enumerate the new features in NFS4.   **(5)**
(D)   How are NFSv4 Client and Server configured? Explain.   **(5)**

Q.3   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   How can Windows PC be connected to Samba Server? What are the advantages of using Samba over NFS?   **(5)**
(B)   What is Samba? What is Server Message Block? Explain.   **(5)**
(C)   Explain the different NTP Utility Programs.   **(5)**
(D)   Explain the Squid Configuration Parameters.   **(5)**

Q.4   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   Discuss the following protocols available in Linux:
http, sshd, ftpd.   **(5)**
(B)   Explain the different standalone services in Linux.   **(5)**
(C)   What are the different files required for DNS Server configuration? Explain each in brief.   **(5)**
(D)   Explain the Host and the dig programs.   **(5)**

Q.5   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is a Macro? What is the m4 Macro Processor? Explain.   **(5)**
(B)   How is Postfix Server Run on a Mail Host? Explain.   **(5)**
(C)   How is vsftpd configured? Explain the important configuration files of vsftpd.   **(5)**
(D)   Enumerate and explain the steps to enable guest user ftp accounts in vsftpd.   **(5)**

Q.6   ATTEMPT ANY TWO QUESTIONS: (10 MARKS)

(A)   What is content negotiation? Explain with example.   **(5)**
(B)   Explain the <Files><Files>and<IfModule></IFModule>blocks.   **(5)**
(C)   How can we change the login shell of the user and Password Expiration Policy? Explain the commands with their options.   **(5)**
(D)   How can we verify the rpms? What information is evaluated during the verification process? Explain the rpm Verification Keys.   **(5)**

[TURN OVER]

Q.7   ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

(A)   Explain the FAT, FAT32 and NTFS File Systems.   **(5)**

(B)   What are the advantages and disadvantages of NFS? Explain.   **(5)**

(C)   How are reference clocks configured? Explain.   **(5)**

(D)   What are Zone Statement? Explain the different values for the Zone Statement.   **(5)**

(E)   Explain the important Sendmail files and commands.   **(5)**

(F)   How can the shadowed group file be used? Explain.   **(5)**